

California **GARDEN**

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Part 2
Plant Tour of the
SAN DIEGO ZOO



San Diego Garden Club Center

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(GARDEN SECTION)
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(GARDEN SECTION)
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VISTA MESA GARDEN CLUB

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CALIFORNIA GARDEN

Chicken or egg? Which came first?

Apply this line of questioning, if you will, to the prospects for a garden center in Balboa Park. Consider that the chicken is the building, yet to be built. The egg is less definite, but for the sake of this discussion, think of it as the means either of perpetuating the center once constructed, or of getting it built in the first place, depending upon your conclusion about which comes first.

Let's explore the problem. As gardeners or garden club members, we have already established a certain entitlement to space in the park for a meeting place. At the moment, we have the Floral Association Building, where 14 groups hold regular meetings, where classes are conducted and shows are held from time to time. But this building, at an unspecified date, is to be removed or reassigned.

As the name implies, the Floral Building comes under the direct control of the Floral Association, yet the Association is only one garden club among the 14 which meet there. The remaining 13 groups are affiliate members. What motivates a group to affiliate? The need for a meeting place, of course. Consequently, we have a landlord-tenant situation, though it is verboten to call it by that name, where one club has a building and allows other groups to use it. Will this arrangement work for the garden center of the future?

It might, as it has in the past, if the building were already in existence. But the future garden center, east and southeast of the Botanical Building in Balboa Park, is only a spot of ink on a master plan. And the fate of park bonds in this town would indicate that no building will materialize there unless and until gardeners join together to build it. The pattern of development in the park is emerging fairly clearly: non-profit, private organizations supplying the wherewithal for building on the public land. Witness the two art gallery wings, and on a smaller scale, the renovation of Alcazar Garden by San Diego Rotary.

We have arrived, perhaps, at an answer to the first question. The chicken we are after is yet to be hatched; nobody hereabouts is handing out

chickens. Hadn't we better start looking for an egg? How do we get one?

There are no obvious answers, but here are a couple of thoughts on the subject.

1. Organize now (Build a nest). A Board of Governors for the future garden center seems like a logical first step. It would have a unique opportunity. Without the drag of day-to-day operations that occupy so much of the time of most boards, it could be a planner-study group. It could assemble experience data on other garden center operations, such as those in San Francisco, Sacramento and Cleveland. It could enlist the talents of local landscape architects, architects, artists and nurserymen, so that the finished product would be not only a delight for garden club use but a showcase for the many arts and professions so closely allied with gardening. We want more than a meeting place, don't we?

2. Start raising money (Feather the nest). Clubs should be willing to devote part or all of the profits from one show a year (when profits materialize) to a building fund. (And "Proceeds to the Garden Center" might be just the spur we all need to improve show attendance.) The garden center organization itself could work toward a mammoth, city-wide flower show.

When we have exhausted our own resources, we can hope for material support from local businesses. Interest in gardening runs deeply through all layers of our society.

To produce the necessary egg, something on the order of a small-scale United Nations seems to be required, with many organizations submerging part of their identity, part of their sovereignty, for the good of all. United, of course, is the key word in any successful nesting operation.

These things will not be done in a day. We are lucky to have time ahead to explore our needs and resources. But we need to make a move toward clarifying our aims and gathering sticks and straws.

We will reserve space in the next issue for thoughts on this subject from our readers. We promise impartial handling of any and all points of view. Think it over, talk it over, and let us hear from you by November 1.

George La Pointe

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COVER—Look familiar? You're in the Zoo again, with a view across the lizard pits and tortoise enclosure to the California Tower. The scene is the same as last issue, but done up this time in fall colors. Photograph: Thos. L. Crist.

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CALIFORNIA GARDEN

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Sir:

While my husband and sons saw the animals at the San Diego Zoo, I toured the plants with your magazine (Aug.-Sept. '62) in hand. When we left the grounds I knew the entire "A" mesa and Children's Zoo by heart. I want to enter my subscription, especially to receive your next issue containing a tour of the Monkey mesa and Flight Cages, for our next trip to San Diego. In fact, I'm looking forward to all your very informative articles.

(MRS.) SUE GREENFIELD
Woodland Hills, California

Sir:

We are really enjoying this lovely magazine. All of it is of local interest. Thank you for publishing it.

PAUL T. MUSE
San Diego

Sir:

I was purring along with Mr. T. L. Hosmer's article on species geraniums until he brought me right out of my seat by calling *P. gibbosum* "undistinguished." If anybody can pass gibbosum's queer bumpy stalks, chartreuse flowers, or rare bitter-almond fragrance without saying "How extraordinary!" I'll sit back down again on a well-grown *Euphorbia splendens*.

AUSTIN FARICY
Osaka, Japan

50 YEARS AGO in CALIFORNIA GARDEN

October, 1912—Our gridiron form of street plan has pushed its devastating way through sightly hills and over pleasant canyons, tearing down one to fill up the other, so long, not only unopposed, but even uncriticised, that it was but natural to regard it as inevitable like the doctrine of original sin.

November, 1912—It has even been intimated that an inner circle runs the affairs of the [Floral] association . . . The inner circle is made up of comparatively few . . . who not only give their money, but their time and thought and energy, in making the association the success it has been. This circle is a very elastic one and can be stretched to take in every citizen of San Diego.



Designer Harmonizes Flowers, Food

• Marjorie Rankin carried out the "Flower and Food Festival" theme of the 1962 California International Spring Flower Show in Inglewood with this entry in the Professional Flower Arrangement Section. The arrangement was displayed in a high corner niche.

The chartreuse color of the rare cymbidiums, variety unknown, from Hawaii is repeated in the feathered leaves of sago palm on the left and the two stems of leather fern that arch high to the right. At center, the burnished red leaves of *Ternstroemia japonica* give depth to the design by repeating the red accent at the throats of the orchids. A small branch of yellow privet softens the front of the arrangement.

The unusual tall container of heavy black wire is reflected in an oblong base of black glass. In the black wire bowl, an apple and pear, chartreuse flushed with red, topped with a cluster of immature green loquats, echo the colors of the flowers above.

Mrs. Rankin, of Reseda, is a member of Floral Designers, Inc.

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October - November, 1962

Plants from Around the World in the SAN DIEGO ZOO

• This second tour of the San Diego Zoo's great gardens begins at the northeast corner of the Flamingo Lagoon, where the first tour (CALIFORNIA GARDEN, Aug.-Sept. '62) ended. Since repetition is one of the essentials of garden design, you will find some plants that were covered in the previous tour appearing again in this one. To avoid confusion, we have chosen not to cross-reference the two articles. Each tour stands by itself. For maximum appreciation, however, we recommend that readers consider the relationship.

Growing through the pavement of the walk outside the



San Diego Zoo Photographs
by R. Van Nostrand



Drawing by Alice M. Clark

fence is another Mexican Fan Palm (2). Behind it is another type of rubber tree, (8) Rusty Leaf Fig (*Ficus rubiginosa*), an Australian native with large, deep green, leathery leaves. Note the aerial roots from the trunk and branches. Near the corner is a specimen of the (9) Common Rubber Tree (*Ficus elastica*) from India and Malaya. This variety is often used as a jardiniere plant.

Looking back from the corner into the dense planting, you will see a number of Queen Palms (3) and several (10) Windmill Palms (*Trachycarpus fortunei*). These fan palms from central and eastern China have black, fibrous trunks. The Chinese use the fiber in making hats, mats, brushes, rope and raincoats.

As you come to the end of the fence, turn right and walk diagonally across the road to the group of plants surrounded by a low concrete-block wall. In the center is a large (12) Canary Island Date Palm (*Phoenix canariensis*). To the rear of the canteen is (13) *Cotoneaster parneyi*. This Chinese native is a shrub with arching branches, small ovate leaves, and clusters of small white flowers followed by attractive red berries. In this same planting are *Abelia grandiflora*, with a profusion of white flowers with brown bracts, Natal Plum (*Carissa grandiflora*), *Pyracantha* and Shell Ginger (7).

Take the path to the right. Inside the next fence, which separates the walk from the row of gorilla cages, is a hedge of (14) *Eugenia (Eugenia paniculata australis)*, the Australian brush cherry. *Eugenia*, still widely used for hedges, was probably the most common doorway accent plant a generation ago. When given room and deep soil, it can become a sizable tree.

As you follow the fence northward, glance right down the hillside into the fern-filled canyon. The trees on the hill are mostly (15) Jacaranda or Green Ebony (*Jacaranda acutifolia*), tropical American natives with fern-like foliage and blue or purple flowers in May or June before the leaves appear. The slope here is covered with Brake Fern.

At the end of the cages, a short flight of steps leads

Above: Exotic blooms of Giant Bird-of-Paradise (5) crowd up and outward almost like real birds in a nest. Blooms appear at the base of banana-like leaves. The boat-shaped bracts of blue-black enclose white flowers with blue tongues.

Below: Flowers of Shell Ginger (7) hang in clusters from the plant's multiple arching canes. The buds, with the luster of sea shells, are white with pink tips; they open to show a yellow lip veined with red. This ginger grows from inedible rhizomes.



downward to the east entrance to the Rain Forest. On the left is a sprawling specimen of (16) Brazilian Pepper tree (*Schinus terebinthifolius*), with shiny evergreen foliage, small white flowers, and attractive red berries during the winter months.

THE TROPICAL Rain Forest, opened two years ago in July, has proved to be one of the Zoo's most popular innovations. Coupled with the "Speedramp" moving sidewalk to the west, it offers an easy trip along ramps down the steep canyon wall, through bird-filled tropical vegetation, and up again through an open eucalyptus grove where deer browse.

Housing the Rain Forest is the world's largest free-flight cage, 170 feet long, approximately 85 feet wide, and 125 feet high at the lower road. Prior to remodeling, it contained two condors and a few other birds of prey. Now it is home to 350 birds of 100 species, mostly fruit eaters. Some of the more spectacular, according to a ZOONOOZ report, are the Quetzal, or Resplendent Trogon, national bird of Guatemala; Cocks of the Rock, the most brilliant in the exhibit; the Sun Bittern of South America; and Sclater's Motmot of Brazil, also called the "Barber Bird" for its habit of shaving its tail feathers. Also included are several species with banana-shaped bills, the Toucans, Toucanets and Aracaris, plus the White-winged Trumpeters of the South American rain forests, and a variety of shore birds.

The remodeling, designed by Charles Faust with construction supervision by Robert Jarboe, has produced an ideal environment for tropical plants. The vast cage is covered with green plastic shade cloth to screen out 40% of the light. The watercourse, falling and winding from top to bottom of the cage at a rate of 150 gallons of water per minute, adds needed humidity. And the planting beds contain a special soil mix containing 80% fine redwood sawdust and 20% fine sand, fortified with blood meal, superphosphate, muriate of potash, calcium carbonate, and dolomite.

After entering the Rain Forest through the self-closing, aluminum double doors, make a sharp turn to the left, and begin inspecting the plants behind the waist-high wall. At far left, the dwarf plant with mottled green and yellow leaves is (17) *Bamburanta arnoldiana variegata*, from the Congo and West Africa. The name suggests a cross between bamboo and some form of Maranta. Next is a Giant Bird-of-Paradise (5), followed by a (18) Philodendron (*Monstera deliciosa*), a native of Mexico and Guatemala. It has curious, perforated leaves and thong-like aerial roots. Cone-like, succulent fruits, yellowish when ripe, have a flavor like a blend of banana and pineapple.

Next to this philodendron is one of our native (19) Chain Ferns (*Woodswardia fimbriata* or *W. chamissoi*). A tree fern from Hawaii, (20) *Cibotium chamissoi*, stands at the end of the front row. Large fronds, usually not more than three or four at a time, uncurl from the top of its fibrous trunk. In the background is (21) Giant Bamboo (*Sinocalamus oldhami*), native to India and Cochinchina. We think of bamboo principally for its grace and usefulness in the landscape, but in its native lands it is used in the making of furniture and fine paper, and the young shoots as food. Near the corner of the wall is a (22) Costa Rican Anthurium (*Anthurium bacumense*), with thick, leathery, oblanceolate leaves. Its bloom is a spadix on a short stem, with attractive bottle-shaped crimson fruit.

The level ramp crosses here beneath a plunging waterfall. Beyond and to the left is a planting bed similar to the one just discussed. In the corner is another clump of

Bamboo (21) and then a clump of (23) Bananas (*Musa paradisiaca*), the common cooking banana or plantain from India and Malaya. Next, the plant with the large ovate, arrow-shaped leaves is (24) *Xanthosoma sagittaeifolium*. This tropical American native with edible roots replaces taro as a food plant in the West Indies. You will recognize an Aralia (11) in front and a Giant Bird-of-Paradise (5) at rear. The spreading plant with immense bold tropical leaves is (25) *Philodendron evansi*, a cross between *P. sellowii* and *P. speciosum*.

Near the west door is an upright, double-stemmed plant with large, coarse, palmate leaves, which are silvery white on the underside. It is (26) Rice Paper Plant (*Tetrapanax papyriferus*), a native of Formosa. To the left of the Rice Paper Plant, the small tree with maple-like leaves may be *Brachychiton biduilli*, a type of Bottle tree from Australia. Positive identification is impossible without seeing the tree in bloom.

Now turn to your right and start down the ramp. The tree in the bend of the pool is a (27) Blackwood Acacia (*Acacia melanoxylon*) from Australia, a holdover from the days when this cage housed birds of prey. At the base of the tree is a cut-leaf plant with slender stems mottled with white. It is (28) False Aralia (*Dizygotea elegantissima*), native to the Pacific Islands. Its brownish-green leaves are finely divided into 7-11 pendulous leaflets. Near the rail, the shrub with small white and green leaves is (29) Italian Buckthorn (*Rhamnus alaternus argenteo-variegata*). The upright, palm-like plant with slender stems and narrow green leaves is known botanically as (30) *Cordyline terminalis cannaefolia*. This East Indian native, which produces delicate sprays of lilac flowers, is sometimes sold in nurseries as *Dracaena stricta*. Since it is almost impossible to distinguish between these two genera, their varieties and species, it is a question which is really correct.

Beyond the waterway, looming overhead, is a (31) Red Ethiopian Banana (*Musa maurerli*), a plant used repeatedly and with great success in the Rain Forest. With large leaves colored a rich green mixed with purplish-brown, it is a striking plant, especially when grown in a sunny, windless place. At right of the banana, under a philodendron near the wall is another Bamburanta (17), a plant mentioned before. It also goes under the name *Hybophyllum braunianum*, in the Maranta family.

Follow the walk downward to the left. In the sharp angle formed by the upper and lower ramps, you will notice an (32) Octopus or Umbrella tree (*Brassia actinophylla*, often sold as *Schefflera a.*). This Australian shrub has large, handsome, glossy, digitate leaves. The terminal inflorescence consists of several radiating spikes, one to two feet long, suggesting octopus tentacles, with dark red flowers along each spike. Next to the waterway is a slender tree with spiny trunk. (33) Floss Silk tree (*Chorisia speciosa*) from Brazil. In the late winter, when the tree is leafless, orchid-like, three-inch pink flowers appear, to be followed by pear-shaped capsular fruit. The seeds are covered with soft, silky floss, a material used for stuffing pillows.

Below the Red Ethiopian Banana (31) near the end of the walk is an (34) Australian tree fern (*Alsophila australis*), its slender, root-clad trunk topped with a dense head of graceful fronds. Above the bench is a plant that resembles a pineapple. It is one of the several bromeliads mixed in the planting throughout the Rain Forest. Near the steel girders above and below the ramp are (35) Yew Pines (*Podocarpus macrophyllus*) from China and Japan. The dense branchlets of this small tree, with narrow leaves



View from lower end of Rain Forest shows scope of world's largest free-flight cage. Prominent plants are

Red Ethiopian Banana (31), Cordyline (38), Tree Ferns (20 and 34), and Giant Bamboo (21).

spirally arranged, make it ideal for a vertical accent or screen.

The tree on the low side is (36) Mountain Papaya (*Carica candamarcensis*), native to Colombia and Ecuador. The immense, deeply lobed leaves on long stalks are green and downy. When ripe, the ovoid five-angled fruit is gold-

en-yellow, with an apple-like odor. To the right of the Papaya is a clump of (37) Metake or Arrow Bamboo (*Pseudosasa japonica*), with charming feathery foliage.

Down the ramp to the right is (38) *Cordyline australis*, from New Zealand, sometimes called Cabbage Tree or Palm Lily. The narrow leaves of this herbaceous plant can be

made into twine or paper. Beyond the waterway, after a Hawaiian tree fern (20) and an Ethiopian Banana, is a (39) Seaforthia or King Palm (*Archontophoenix cunninghamiana*) from tropical and subtropical Australia. It grows upright, with a single trunk and spreading, feather-type leaves. The sprawling tree in the background between two bananas is a Kafir Fig (1).

Standing midway on the fourth bridge, looking left, one can see (40) *Clivia miniata*, Kafir Lily, on either side of the waterfall. This South African herb with evergreen, strap-like leaves produces showy reddish-yellow or scarlet flowers followed by bright red berries. Near the end of this walk is a specimen of (41) Horoeke or Lancewood (*Pseudopanax crassifolius trifoliolatus*), a slender New Zealand tree-shrub with trifoliate, dark green, leathery leaves.

Below the railing at the next turn is a low pineapple-like plant, (42) *Aechmea caudata variegata*. A Brazilian bromeliad, the plant consists of a cluster or rosette of stiff green leaves broadly banded with creamy yellow. From the center rises a short spike with a cluster of floral bracts and golden-yellow flowers.

On the right, the plant with branches arching over the walk is (43) *Schefflera digitata* or New Zealand Schefflera. Usable either as a shrub or vine, it has showy, deep green, digitate leaves and inconspicuous greenish flowers followed by vertical sprays of purplish-black berries. Near the top of the wall is a (44) Mother Spleenwort Fern (*Asplenium bulbiferum*), native to New Zealand, Australia and India. This curious fern has a much divided frond which often bears bulbils which sprout into new plants while still attached. At the left rear is a (45) Loquat (*Eriobotrya japonica*), a small tree from China and Japan with attractive gray-green leaves. Clusters of small, fragrant flowers are followed by yellow plum-like fruit which is edible but contains many seeds. At the corner of this bed next to the waterfall is a somewhat bedraggled specimen of (46) Umbrella plant (*Cyperus alternifolius*). This African plant with many slender stems topped by grassy leaves produces tiny flowers in umbrella-like clusters. It grows best in moist places.

In the sharp angle of the ramps at left is a (47) *Ficus petiolaris*, a species of rubber tree from Mexico. Identifying characteristics are its swollen base and the nearly heart-shaped leaves with tips drawn out into a tail. These waxy, leathery leaves are blue-green, with showy red veins and petioles.

Midway along the final ramp on the right hand side is a (48) Sickletorn Asparagus (*Asparagus falcatus*), a tall-climbing, leafless, spiny vine from South Africa. Its dark green leaf-like cladodes are 2-3 inches long. The sharp thorns at the base of each leaf turn downward. Another specimen can be seen to the left at the exit.

Outside the Rain Forest, the tree in the center of the walk straight ahead is (49) *Eucalyptus crebra*, Narrow-leaved Ironbark, an Australian native. Others of the same species are planted on the slopes to the left. These eucalyptus has furrowed bark and dull green, lanceolate leaves.

Also on the left slope are two shrubby plants. The one with vine-like tendrils is (50) Australian Bluebell Creeper (*Sollya heterophylla*), a dense shrub with slender, twining stems clothed with narrow, lance-shaped leaves. The bell-shaped flowers, of a good blue, appear in loose terminal clusters. The other shrub is (51) *Hebe elliptica (decussata)*, Purple Glory Veronica, from New Zealand. The glossy leaves, in four uniform ranks, are topped with dense heads

of blue-to-purple flowers.

Hanging over the path at left and right are (52) *Eucalyptus polyanthemos*, Redbox or Silver Dollar Gum. These Australian natives have nearly round, gray-green leaves. Between the lower path and the road is a dense planting of Hebe (51).

A FEW yards down the canyon, opposite the sea lion pool and plaza, is the entrance to the "Speedramp" moving sidewalk. The longest installation of its kind in the world, it will lift you at a rate of 90 linear feet per minute over a 312-foot belt length to a landing at the west door of the Rain Forest. At the start of the ride, note the vine clinging to the retaining wall at left. It is (53) Small-leaved Creeping Fig (*Ficus pumila minima*), a native of China and Japan.

When you reach the top, take the center path between the block walls. The first plant on the right is (54) Bird-of-Paradise (*Strelitzia reginae*). This trunkless South African perennial consists of long-stemmed leaves with floral stems bearing exotic, bird-shaped flowers of orange and blue-purple. Following, on the right, are (55) Tea tree (*Leptospermum keatleyi*), from New Zealand, a graceful shrub with small foliage and pink flowers; a compact type of (56) Bougainvillea called Temple Fire or Red Bush, with deep red flower bracts; and (57) New Zealand Flax (*Phormium tenax aurea marginata*), an herbaceous plant with long, sword-like green leaves, margined with yellow.

Looking back towards the entrance to the Rain Forest, you will see a (58) Pincushion or Needle Bush (*Hakea suaveolens*), a shrubby plant with prickly foliage from western Australia. The low-growing shrub with hairy, gray-green leaves is (59) Pride-of-Madeira (*Echium fastuosum*), a native of Europe and the Canary and Madeira Islands. In the late spring it produces spectacular spikes of purple flowers. Four clumps of (60) Senegal Date Palms (*Phoenix reclinata*) occupy the center of this raised



E. polyanthemos



Striking flowers of Bird-of-Paradise Bush (73) have five yellow petals, long, brilliant red stamens.

planting bed. This palm, native to tropical Africa south to Natal, has a graceful, sometimes curving trunk, topped with a dense clump of deep green, feather-type leaves, which are very thorny at the base. In the shade of the palms are several (61) Cast-iron plants (*Aspidistra elatior*) from China. This foot high plant with smooth shiny leaves takes its common name from its tolerance of abuse as a house plant. At one time it was so common in saloons that it was known as "lager-beer-plant."

At the top of the rise at right, as you come up the walk, is a curious tree with a massive, scarred trunk. It is a (62) Dragon tree (*Dracaena draco*), native to the Canary Islands. These plants grow to immense size and reach venerable age, some over 3000 years old having been recorded. Note the stubby, root-like growths half way up the trunk. In the tree's native habitat these rootlets eventually reach the ground and act as traces to support the heavy heads of fleshy, sword-like leaves. In the foreground, the 7-foot cactus with many branches is (63) *Cereus peruvianus*, from southern Brazil and Paraguay.

On the opposite side beyond the palms is a tree with fine needle-like foliage. It is (64) River She-oak (*Casuarina cunninghamiana*), native to Queensland and New South Wales. Between it and the palm clump is a shrub called (65) Yellow Oleander (*Thevetia nereifolia*), a tropical American plant with narrow leaves and clear yellow to orange flowers. Nearer the walk is a dense growth of (66) Autumn Sage (*Salvia greggi*), a small-leaved shrub, native to Texas and Mexico, with numerous small reddish-purple flowers in the fall. Five tall Queen palms are scattered through this planting, and near the rear corner of the Rain Forest are two Dragon trees (62), one very tall. Beneath the Queen palms are two types of (67) Century plant, three *Agave americana marginata* and two *Agave at-*

tenuata, a spineless variety.

Looking to the right of the path again, you will notice a bed of mixed succulents containing cacti, aloes and euphorbias. At the end of the bed, just above the wall, is a straggly specimen of (68) *Kalanchoe beharensis* (formerly called *Kitchingia mandrakensis*), a woody succulent native to Madagascar. Its large triangular leaves, olive-green with rusty-felted hairs above and silvery on the underside, stand out on strong leaf-stalks.

Straight ahead on the left is more Giant Bamboo (21). Clambering over the cockatoo cage at right is (69) Giant or Burmese Honeysuckle (*Lonicera bildebrandiana*), a vigorous evergreen climber with large, creamy-white flowers which turn orange with age. It is in full bloom in May and June. At the front of the cage is a mass planting of Bird-of-Paradise (54).

Across the road is a line of bird cages stretching across "B" Mesa. Growing on the roofs are several (70) Cup-of-Gold vines (*Solandra guttata*), rampant Mexican natives with thick green leaves and huge, solitary, creamy buds that unfold into golden cups with five purple ridges and five golden stamens. The pulpy fruits resemble green apples. (71) Boxwood (*Buxus microphylla japonica*) has been used inside the low fence as a formal hedge, with (72) Pink Joy or Jade Plants (*Crassula portulaca*) at each end. The foliage of this South African native consists of oval fleshy leaves; midwinter flowers, rare in the shade, are pink over white.

The small trees between the second, third and fourth cages in the line are known as (73) Bird-of-Paradise Bush (*Poinciana gilliesii*). These South American members of the Pea family are notable for fern-like foliage and spectacular summer blooms, made up of five bright yellow petals and protruding red stamens 4-5 inches long.

AT the far side of the Mesa, the roof of the second flight cage arches above the road. Four large trees, growing through the pavement, are silhouetted against the wire of the cage. They are (74) Silk Oaks (*Grevillea robusta*), fast-growing Australian natives with finely cut leaves and 6-10 inch trusses of orange-yellow flowers in summer. Throughout the colder states this tree is sold by the thousands as a pot plant.

To the right of the steps at the northwest corner of the flight cage is a dense, spreading specimen of (75) Kafir Plum (*Harpephyllum caffrum*), a South African tree with leaves ranging from bright red to dark, glossy green. This particular tree has bloomed profusely this summer, so it should have a notable display of dark red olive-sized fruit this fall.

Down a few steps is the west entrance to the flight cage. Donated to the Zoo by the Scripps family, this cage was built in 1926. It measures 82 feet high at the lower end, 150 feet long, and an average 68 feet in width. Since it contains shore and marsh birds, the cage is unshaded, and the planting is more rugged than that of the Rain Forest.

In the corner at left just inside the double doors is an (76) *Agave decipiens*, a type of Century plant from Yucatan. At left around the first corner is an (77) *Acacia longifolia*, and above it, an (78) *Acacia verticillata*. Both are Australian natives. *A. verticillata*, known as Whorl-leaved Acacia, blooms in May; without flowers or seed pods, it could easily be taken for a conifer.

The shrub in front of the signs and along the top of the wall is (79) *Pittosporum tobira*, a Japanese native sometimes called Mock Orange for its fragrant, creamy-white flowers. Two jasmines add their fragrance here in

season: (80) Primrose Jasmine (*Jasminum mesnyi*), a rambling shrub with small yellow flowers with darker centers often double; and (81) Italian Jasmine (*Jasminum humile revolutum*), with yellow flowers in clusters.

Near the end of the first ramp, just short of the waterfall, a stemless plant with stiff green leaves is growing among the jasmine shrubs. It is *Furcraea gigantea*, from southeastern Brazil. To the rear of the source of the waterfall are a Hakea (59) and a (82) Jelly Palm (*Butia capitata*), another Brazilian native. The small tree with weeping foliage against the east wall is (83) Drooping She-oak (*Casuarina stricta*), from Australia.

Looking downward from the second ramp, you will see a small tree with maple-like leaves. It is (84) Flame Tree (*Brachychiton acerifolius*), an Australian native which takes its common name from the loose clusters of half-inch scarlet flowers which smother the tree in early summer. Beyond a Whorl-leaved Acacia (78) is a handsome specimen of (85) Toyon or California Holly (*Heteromeles arbutifolia*), a California native.

On the right beyond the waterfall is a mixed planting containing, in order, Loquat (45), Wax-leaf Privet, Hakea (59), Bronze Flax, and another Loquat. The Privet, (86) *Ligustrum lucidum texanum*, has deep green glossy foliage and panicles of white flowers in spring. Bronze Flax, (87) *Phormium tenax atropurpureum*, a variety of New Zealand Flax, carries a dull red color in its sword-like, stemless leaves. Around the corner at the end of the stone wall is a (88) Costa Rican Holly (*Olmediella betschleriana*) leaning out into space. It is an attractive shrub with thick, glossy, serrated leaves. Below and to the left, a lone Kentia Palm (4) can be seen.

To the left along the third bridge (89) Heavenly Bamboo (*Nandina domestica*) is growing through a jasmine

shrub. It is a Chinese native with graceful compound foliage, white flowers and red berries. Hanging over the railing at left at the end of the bridge is an interesting tree-shrub called (90) Brazil-wood (*Caesalpinia echinata*). The spiny stems and armed leaves of this tropical plant may be somewhat forbidding, but the deep green glossy leaves, small yellow flowers in fall, and red and yellow leathery seed pods are very attractive.

Down the ramp beyond a clump of Whorl-leaved Acacia (78) is a small (91) Monterey Cypress (*Cupressus macrocarpa*), native to California, a regular specimen of the picturesque, wind-blown trees of the Monterey Peninsula. In an upper planting bed is (92) *Yucca recurvifolia*, an American native with a range from Georgia through Mississippi; and below right, (93) *Myoporum acuminatum* or Water Bush, an Australian shrub with succulent, deep green leaves, small white flowers and purplish berries.

Near the next angle of the path at pool level is (94) Honey Bush (*Melianthus major*), a South African plant with very distinctive foliage. It is a soft-wooded shrub with multiple stems topped with ruffled leaves of light blue-green.

This broad pool is a good place for a pause to enjoy the bird life. Flamingos and other wading birds can usually be seen here; and at feeding time, Zoo attendants throw fish into the air for a swooping catch on the part of the gull-like fliers.

At left beyond the pool, a Canary Island Date Palm (12) shades a (95) *Grewia occidentalis*, which grows against the railing. Sometimes called "Four Corners," this South African shrub has elm-like leaves, pinkish-mauve flowers, and curious seed pods. Across the walk, to the right of the bird-identification sign is (96) Sugar Bush (*Rhus ovata*), native to Southern California and Arizona, an evergreen shrub with thick leaves and pink flowers in dense heads.

The two tall trees on the lowest level of the cage are (97) Forest Red Gum (*Eucalyptus tereticornis*) from Australia. In the upper branches you should be able to see several large birds' nests.

OUTSIDE the south door, turn left and go up the steps to the summit. (These 111 steps are a good test of your age.) Opposite the first landing at right are two (98) California Pepper trees (*Schinus molle*), native to the American tropics. This is a tree with airy foliage, inconspicuous flowers in terminal panicles, and hanging clusters of rose-colored berries on the female tree. At the top are more Pepper trees and another Acacia (77).

Turn right or eastward to the row of Monkey cages. Inside the guard rail is a loose hedge of (99) Breath of Heaven (*Diosma ericoides*), a South African shrub with aromatic foliage and myriad small white flowers. At left, between the cages and the road, is a Wax-leaf Privet (86) hedge.

The next cage eastward houses the Spider Monkeys. The planting which separates this balloon-hangar enclosure from the road features a (100) European Hair Palm (*Chamaerops humilis*), Variegated New Zealand Flax (57), and Shell Ginger (7). Below the ginger is (101) *Cordyline terminalis nigrorubra*, Palm Lily, a plant with grass-like leaves of deep bronze. Across the road a row of heavy-trunked Canary Island Date Palms (12) provides shade for the figure-8 benches.

East of the monkey cages, (102) Purple Hop-bush (*Dodonaea viscosa atropurpurea*) has been used as an informal hedge. This plant, native to Australia, New Zealand and tropical America, has narrow reddish-purple leaves,



Brazil-wood (90), a thorny tropical tree-shrub, produces yellow flowers, red and yellow seed pods.



Clump of Senegal Date Palms (60) marks end of tour. This 15-trunked specimen, one of Zoo's prize plants, shades resting area.

tiny green flowers, and winged, papery seed pods of reddish color. At the end of the hedge next to the road is a Pride-of-Madeira plant (59).

To the rear of the resting platform in front of the rest rooms, the large shrub at each end of the planting is (103) Japanese Viburnum (*Viburnum japonicum*). It has dark green, glossy, ovate leaves and small, fragrant flowers. Between the two Viburnums, the tropical-looking plants with large glossy leaves are Philodendron (25). Against the rear wall is a row of Hakea (58) on either side of a clump of European Hair Palm (100), with Tea trees (55), hibiscus, raphiolepis, juniper, and (104) Natal plum (*Carissa grandiflora*) in front.

At each end of the planting space between the sidewalk and the curb is a (105) Bracelet Bottle Brush (*Melaleuca armillaris*). This graceful Australian shrub has stems covered with small, green linear leaves; the flower clusters are white and cylindrical. (106) *Cotoneaster glaucophylla*, from western China, a plant with gray-green leaves, small white flowers and tiny red berries, has been used in between as a ground cover.

To the left of the entrance walk to the men's rest room are a shrub, Myoporum (93), and a three-trunked tree with shredding bark, (107) Brisbane Box (*Tristania conferta*). This upright Australian tree with large oval leaves produces five-petalled white flowers in umbel-like clusters, followed by seed-cups resembling those of eucalypti.

Near the corner of the fence is a square planter dominated by a Bronze Flax (87). Of much greater interest are the small plants at the four corners. They are (108) Butcher's Broom (*Ruscus aculeatus*), a European plant rarely seen growing in San Diego County. Its minute bract-like leaves, actually cladophyll, are spiny-pointed, with tiny red berries on the surface. Used extensively by florists, the branches are often dyed various colors for combination in

bouquets with everlasting flowers.

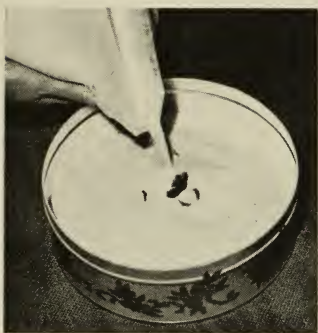
In the next planter are three shrubs with a similar look. The first two are (109) Karo Pittosporum (*Pittosporum crassifolium*), New Zealand shrubs with leathery, gray-green leaves. The deep purple flowers, solitary or in umbels, are followed by round, 2-4 valved capsules. The tallest of the three is (110) New Zealand Christmas tree (*Metrosideros tomentosa*). Its foliage is olive-green above and felted gray below. It produces very attractive cymes of brilliant scarlet flowers, in early summer here, in December in New Zealand. Overhanging the wooden bench at the rear is a Brazil-wood tree (90).

Between the two large canteens, inside and outside the fence, are three Silk Oaks (74). The low planting includes (111) White-spot Pittosporum (*Pittosporum tobira variegata*), a green- and white-leaved shrub from China and Japan, and (112) African Box (*Myrsine africana*), a bushy evergreen shrub with tiny, dark-green leaves. Its native range is from Africa through Arabia to Central China.

A large spreading palm with fifteen trunks overhangs the sitting area which marks the end of this tour. This tree, which was transported to the Zoo from the Point Loma estate of Mrs. Henry B. Clark, is a Senegal Date Palm (60). The evergreen vine used beneath it as a ground cover is (113) Star Jasmine (*Trachelospermum jasminoides*). This Chinese native is widely grown for its good foliage and the fragrance of its star-shaped, white flowers. At this point, you will probably welcome the generous supply of comfortable seats around and under the palm.

When this article was written, each of the plants mentioned was in its designated place. If you look for one and it isn't there, it is probably because of the Zoo's constant and progressive reconstruction program. As building goes on, some plants naturally must be destroyed. The more valuable ones are transplanted to new locations.

Flowers and Foliage Do Double Duty-



Lauretta Pharis demonstrates the simple 1-2-3 procedure for drying flowers with silica gel.

TOP: Flower is placed on a bed of silica gel in appropriate container. Dispenser (included in some flower-drying kits) is used to sprinkle desiccant into inaccessible parts of the flower.

CENTER: Material is poured from bag until flower is entirely covered.

RIGHT: With airtight lid in place, Mrs. Pharis wraps container in plastic bag for extra protection. Approximate drying time: one week. The number of flowers processed at one time is limited only by size of container.

Want to save a prized specimen from your garden? On the lookout for inexpensive gifts you can make yourself? Try drying flowers this new, easy way, then use them with imagination.

Photographs by
Eugene Cooper



EVEN in Southern California, where there's something in bloom the year around, it's human to want to save a favorite flower for off-season enjoyment or for use in an inexpensive, "made-by-hand" gift or favor. That's why silica gel, now on the market in flower-drying kits, is news — good news.

Silica gel, one of the most highly absorbent materials ever discovered, literally pulls moisture from flowers or greenery placed in it, and does the job fast enough so that colors and textures remain true. The material can be re-used indefinitely.

Local arrangers and hobbyists report excellent results, though they classify their efforts as "still experimental." But not Top Secret. Here are some of the things they have learned.

- Choose flowers or foliage carefully. For flowers the psychological moment is at some point between the open bud stage and full bloom. (Some flowers will continue to open during the drying process.)

- Cut materials when the air is cool and dry. Moisture on flowers and leaves should be avoided. Start the drying process as soon as possible after cutting.

- Drying time will depend upon the succulence or juiciness of the material. For instance, a gardenia would take longer to dry than a poppy, even if they were of equal size. Small flowers, especially the lacy types with a single row of petals, have proved most successful. Average drying time is

Dry Facts, Imagination Show the Way

about a week, but one of the joys of silica gel is that you can peek without upsetting the process seriously.

- Flowers of pure color — such as clear blue, yellow, pink — and white tend to maintain their color best. Flowers which change color as they age — a dark red rose which turns blue, for instance — are apt to follow the same course in drying.

- Don't expect dried flowers to last forever unless you place them for display in some sort of airtight container. A bouquet of peach blossoms dried in late January this year remained in beautiful condition until June. Then the change of season brought a change of humidity and temperature, and the flowers began to fade. Dried flowers should be kept out of direct sunlight. If you want a more permanent display, consider sealing an arrangement in a bell jar or in liquid poured plastic.

Dried materials lend themselves to many uses beyond semi-permanent flower arrangements. Individual flowers may be sealed in inexpensive clear plastic balls for novel Christmas tree decorations. Flowers and greenery in plastic trays, plates or paperweights may serve to remind you of a vacation scene, or a child of his first garden. Dried conifer foliage can be inserted in cones of foam to build up a long-lasting miniature Christmas tree to decorate a holiday table. And how about herbarium specimens dried and preserved in plastic with complete faithfulness of form and color? The possibilities go on and on.



For permanent display, dried materials must be protected from changes in temperature and humidity. Here are two of the imaginative ways Mrs. Pharis suggests for using them.

ABOVE: Daisies and fern foliage in clear plastic make attractive paperweights. BELOW: Perfectly preserved passion flower becomes a tree bauble in a plastic ball.



Fertilizing Roses in Poor Drainage Soil

Soil chemistry can work for you—or against you. Do you know the rules?

By Don Wilson

IF soil does not drain well, various salts tend to accumulate in the neighborhood of the roots, eventually reaching a concentration which may be detrimental to the bush. In addition, products of decomposition can build up to a dangerous level. In order to minimize these effects and grow big healthy roses in clay or adobe soil, it is necessary to have an elementary understanding of the chemistry involved, and apply these principles in soil treatment and fertilizing methods. To be sure, this is a short cut to experience, but sometimes even experienced gardeners overlook facts obvious to a soil chemist.

We all know that the three principal fertilizing agents are nitrogen, phosphorus and potassium. In this discussion, we can forget trace elements, since these are never added in sufficient quantity to be particularly harmful. Sulphur and calcium will be included.

Suppose we see first why an excess concentration of any salt in the soil is harmful. Plant tissues are composed of somewhere around 65% water, which has in solution various salts and other solids to about 2% of its weight. Just as the human body regulates the solid content of the blood to within rather narrow limits, so the plant, through similar osmotic transfer mechanisms, tries to keep the solid content of the plant juices within rather narrow limits of concentration. If these concentrations are changed considerably by drying or other means, the plant suffers and may die.

There is a mechanism in osmosis (transfer of water or salt across cell membranes) which insists that if the salt concentration on one side of the cell wall is higher than on the other side, there will be a movement of water from the side of lesser to the side of higher concentration. This is an attempt through natural processes to equalize the concentration. Therefore, if salt concentration is higher in

the soil than it is in the plant tissue juices, then the movement of water must be from the plant to the soil. This, of course, is the wrong direction, and if it persists for only a short time, the plant will wither and die from lack of water, even though the soil is flooded.

To understand how this might be brought about through unwise use of fertilizer mixtures in poor drainage soil, some elementary chemical principles should be reviewed. By chemical definition, a salt is a compound formed by the combination of an acid with an alkali. Salts with which we will be dealing in this discussion are included in the following table for reference:

Salt	Chemical Formula	Reaction
Sodium Chloride	Na Cl	Neutral
Potassium Chloride	K Cl	Neutral
Ammonium Chloride	NH ₄ Cl	Acid
Ammonium Sulphate	(NH ₄) ₂ SO ₄	Acid
Ammonium Nitrate	NH ₄ NO ₃	Acid
Calcium Phosphate	Ca ₃ (PO ₄) ₂	Alkaline
Calcium Carbonate	Ca CO ₃	Neutral
Calcium Bicarbonate	Ca H ₂ (CO ₃) ₂	Acid
Calcium Sulphate	Ca SO ₄	Acid
Potassium Nitrate	K NO ₃	Neutral
Sodium Nitrate	Na NO ₃	Neutral
Calcium Nitrate	Ca (NO ₃) ₂	Acid
Potassium Phosphate	K ₂ PO ₄	Alkaline
Calcium Polysulfide	Ca S _x	Alkaline

In general, since salts are formed from the combination of an acid with an alkali, the resulting acid-alkali reaction in solution can be deduced from a little knowledge of the acids or alkalis involved. For example, the three strong acids in chemistry are nitric, hydrochloric and sulphuric. The strong alkalis are sodium and potassium hydroxide. Therefore, all salts formed by combination of these strong acids with strong alkalis are neutral in reaction. A combination of these two alkalis with any acid other than the three strong acids mentioned above will give a salt with an alkaline reaction. In tabular form:

Strong Acids	Chemical Formula
Hydrochloric	H Cl
Sulphuric	H ₂ SO ₄
Nitric	H NO ₃
Strong Alkalis	
Sodium Hydroxide	Na OH
Potassium Hydroxide	K OH
Weak Acids	
Phosphoric	H ₃ PO ₄
Carbonic	H ₂ CO ₃
Sulphurous	H ₂ SO ₃
Hydrosulphuric	HS
Weak Alkalis	
Calcium Hydroxide	Ca (OH) ₂
Ammonium Hydroxide	NH ₄ OH

Before we proceed with the real meat of the discussion, a table of common names would be helpful, so the gardener will know which salt we are talking about:

Common Name	Formula	Chemical Name
Table Salt	Na Cl	Sodium Chloride
Saltpeter	K NO ₃	Potassium Nitrate
Chile Saltpeter	Na NO ₃	Sodium Nitrate
Gypsum	Ca SO ₄	Calcium Sulphate
Lime Sulphur	Ca S _x	Calcium Polysulphide
Bone Meal	Ca ₃ (PO ₄) ₂	Calcium Phosphate
Superphosphate	Ca H ₂ (PO ₄) ₂	Calcium Acid Phosphate
Limestone	Ca CO ₃	Calcium Carbonate
Hydrated Lime	Ca (OH) ₂	Calcium Hydroxide
Muriate of Potash	K Cl	Potassium Chloride

The next step in the development of the argument is to review those fertilizing agents which can be used by the plant, and their sources, to see if those sources contribute any undesirable constituents to the soil.

Nitrogen. Nitrogen is assimilated directly in the form of the nitrate. A nitrate is therefore the quickest-acting source. Ammonia, in the form of the ammonium ion, is easily converted in the soil by oxidation to the nitrate and is another quick-acting source. Organic sources such as blood meal and

ground horn are slower acting, but in soggy conditions tend to give rise to putrefaction products and should be avoided except for surface application. Urea, a pure organic compound (CONH_2), is oxidized more slowly and is a useful source of nitrogen. With other chemicals it can be combined into a relatively insoluble urea polymer which is quite long lasting. This latter is becoming popular as a slowly available nitrogen additive. However, if one of the first-mentioned salts is used, ammonium nitrate, ammonium sulphate or potassium nitrate should be used. All of the molecules of these three compounds can be utilized by the plant and nothing deleterious is left in the soil. If sodium nitrate is used, the sodium portion of the molecule is left over and contributes to the build-up of harmful salt concentration.

Phosphorus. This element is generally added as bone meal or superphosphate. There are minor amounts in various organic sources such as blood meal and sludge. None of these common sources adds to the salt content of the soil. The only thing to remember is that bone meal is quite insoluble and if quick phosphorus action is desired, superphosphate should be used.

Potassium. Here we come to the principal offender in common fertilizers. Potassium is certainly necessary to proper plant growth, but all potassium salts are very soluble in water, and to keep some available at all times in the soil, it is a major constituent of all fertilizers. However, the cheapest source of potassium is the chloride (muriate of potash), and for every atom of potassium used by the plant, an atom of chloride remains to build up the undesirable salt content in the soil. Now if potassium sulphate or, even better, potassium nitrate were used as the source of potassium, there would be no salt build-up, since both the nitrate and sulphate part of the molecule are either useful or not detrimental. Potassium nitrate is to be preferred.

You might wonder how salt can build up in the soil, because even though a soil might have very poor drainage, you don't generally fertilize oftener than once a month with any significant quantity of material. (Foliar feeding adds only insignificant quantities of fertilizer at a time.) Even in poor drainage soil, the water does seep away over a period of several days and you might expect it to carry soluble salts with it. There are two factors operating against this concept in clay

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soils. Clay soils are composed of very small particles, so that the capillary spaces between are correspondingly small. Capillary force becomes greater as the space becomes smaller. In these soils the capillary force balances the force of gravity and effectively traps the water, keeping it near the surface where it can evaporate and thus concentrate the dissolved salts.

In addition to this, clay is composed largely of compound silicates which have an action similar to the zeolites in a water softener. These complex silicates, which ordinarily have calcium and magnesium as the positive ions, can, when the concentration of sodium and chloride ions is high enough, undergo the same ion exchange as does the zeolite in your water softener. Some of the calcium is replaced with sodium and some of the silicate, phosphate or carbonate is replaced by chloride. This, of course, is effective in increasing the total sodium chloride content of the soil. If present in harmful amounts, sodium chloride tends to rob the plant of water. Everyone knows that sea water is fatal to plants, so it is easy to see that 3% (the concentration in sea water) is much too high. As a matter of fact, things begin to happen when the total salt content gets close to 1%.

There are two things one can do to minimize the salt build-up. Fertilizers are available which contain potassium in the form of potassium sulphate. Or you can make up your own fertilizer from potassium nitrate and superphosphate, or from ammonium sulphate or nitrate, potassium sulphate and superphosphate. You could also depend completely on foliar feeding, using a carefully compounded preparation such as "Rapidgro" or Ortho Rose Food.

The other corrective measure is application of gypsum once or twice a year at the rate of a good handful or two around each rose bush. One of the things learned in the tulip fields of Holland is that when a calamitous flooding of the beds with sea water occurred, the soil could be reclaimed in a year or so by several applications of gypsum and leaching with fresh water. The reason behind this action is that if the calcium ion is built up over a period of time, it will exchange with the absorbed sodium, and sulphate with the absorbed chloride. This brings the soil gradually back to its original state. Similar treatment with gypsum will restore the soil in your rose garden from the effects of too much accumulated salt.

Any additive which tends to keep soil on the acid side of neutrality will

gradually condition clayey soil, since the clay colloid tends to be more stable when it is slightly alkaline. Gypsum does this. Sulphur also is acid in reaction and the effect is more slow and continuous than gypsum. Sulphur is slowly oxidized to sulphurous acid, then to sulphuric acid, which combines with the calcium present to form calcium sulphate or gypsum. I prefer sulphur as an acidifying agent and soil conditioner because it also has a beneficial fungicidal action as it oxidizes slowly to sulphur dioxide. This also happens when you use it as a dusting powder either by itself or in combination. If it is only in the ground, one does not have to worry about applying it during periods when the temperature is above 85 degrees. There are some solutions on the market today which are composed principally of dilute sulphuric acid. This is a strong acid. If your soil does not have enough alkalinity to counteract the added acid, or if acid is added in excess, the pH could suddenly fall to 1 or 2 units and kill any plant unlucky enough to be in the same soil environment.

Calcium. This element is essential for the growth of roses, but in Southern California, soils seldom lack calcium. This will be especially true if gypsum is added once in awhile. Also in this area, where soils tend to become alkaline normally, ordinary liming with lime or ground limestone is not necessary. If you do feel like liming, try to get dolomitic limestone, which contains magnesium as well as calcium.

Sulphur. Here, again, sulphur is necessary for good growth, but in arid or semi-arid areas where the rainfall is less than 10-20 inches per year, sulphur is never in short supply. Any need is more than amply supplied through the use of gypsum or sulphur or spray materials containing sulphur.

Speaking practically, although it is theoretically desirable to make up your own fertilizer mix from the most desirable constituents, very few will have the time or energy to do so. Furthermore, it is quite difficult to find inexpensive sources for some of the materials. For myself, I rely heavily on foliar feeding, and in addition, about once a month through the growing season, feed about half the recommended amount of a prepared solid rose food. At this writing, Kellogg's rose food is the only one I have found which uses potassium sulphate at least in part instead of potassium chloride. If any of you have found a preparation meeting my specifications any better, I would appreciate knowing about it.

In Japan-- Morning Is Glorious

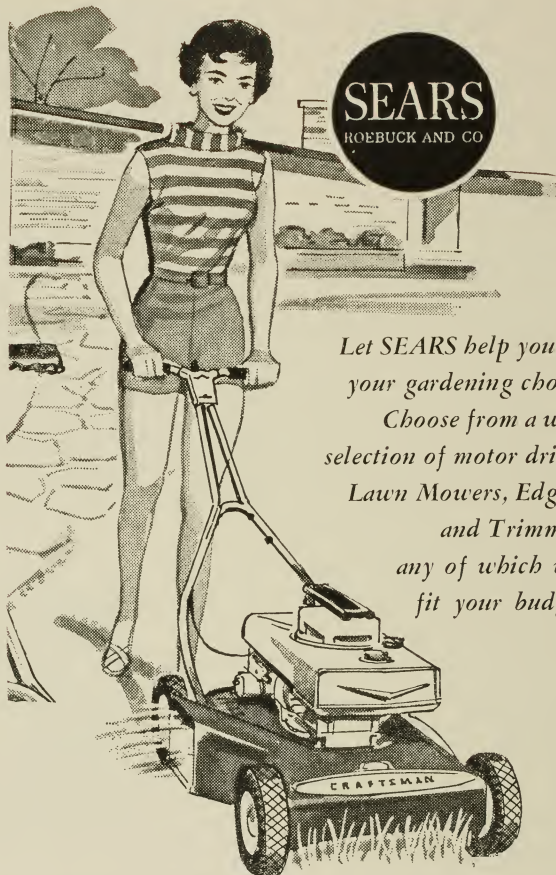
OSAKA, JAPAN — Flowers have little place in the classical Japanese garden, composed as it is of rocks, moss, and gnarled pine trees. But the Japanese do permit themselves certain flowers as seasonal hobbies, and midsummer to fall is the time for morning-glories.

In America we are accustomed to the bright colors and perky blossoms of morning-glories, but in Japan the color is extended both in range, from white through pink, rose, red, purple and blue, and in intensity, from the lurid neon hues that the eye can scarcely fix on, to muted old rose and ash-blue and a grayed lavender of the utmost subtlety. And the huge flowers, up to four inches across, are each one a breath-taking hour of fragile serenity.

They can be grown anywhere, and you see them anywhere, scrambling over fences and among the clotheslines of little apartment balconies, trained on anything or nothing. But the procedure of the connoisseur is to plant them singly in eight- or ten-inch pots, pinch them to four or five stems, and train them up a graceful framework of slender bamboo rods. They may be had from seed, but the named kinds with their extraordinary colors and markings are usually obtained in plant bands from the department store.

There is only one trouble with a collection of morning-glories. "Each morn a thousand roses brings," says Omar, but at least those roses will last until the next day. The thousand morning-glories that each morn brings must be examined and admired right then! A few weeks ago there was an exhibition of morning-glories held in Ten-noji Park: it was in full boil by seven in the morning; and not long after, it shut up for the day. Like a garden looking to see what Santa Claus has brought, you hurry out of bed at the crack of dawn, and have expended yourself in gasps of incredulous delight long before sunrise. Never mind; you can go back to bed in the middle of the day, after the morning-glories have departed.

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For Romance In the Garden Try Cunonia

SOME years ago, for reasons known only to botanists, the Saxifrage family was fractured and a splinter group was established under the name Cunoniaceae. Of the twenty-one genera in this new family, *Cunonia capensis* holds particular interest for gardeners in Southern California.

Why cunonia? The answer takes us back to mid-18th Century Amsterdam, to the garden of John Christian Cuno, a famous plant collector of his day. Barely fifty years earlier, the Dutch had given up their American possessions to the English, but their merchant ships still fanned out over the seven seas. Among those cargoes of yesteryear, many plants from South Africa must have arrived in Amsterdam destined for the Cuno garden; one of them was the tree that bears his name today.

Cunonia capensis is new enough in local gardens so that many characteristics are still in doubt. But its appeal is well established.

The books describe it as "a large, glabrous shrub or tree to 50 feet, growing in moist, woody places in Cape Colony; said to be of easy cultivation in a sandy-peaty soil." Seen in the nursery, it appears in a one- or five-gallon container as a rather tall, slender plant, bushy to the base, arching gracefully outward. The trunk and major stems are gray, the minor stems and twigs a winy red. The large leaves, made up of slender, serrated leaflets, are a light, warm green, about 3 inches long and up to 1 inch wide. These leaves unfold in opposite pairs from a spoon-like sheath at the end of the branch.

The flowers, consisting of creamy stamens, come in dense racemes several inches long and an inch or so wide. These arch out of the axils of the leaves, particularly of the newest leaves. These flower clusters, though not spectacular, are pretty and quite fragrant.

Flower arrangers report that the color and form of the foliage make it ideal for arrangements, either in combination or by itself. It is said to keep well when cut.

Cunonia capensis does not seem to



Alice M. Clark

Graceful habit, striking coloration mark *Cunonia capensis*, a newcomer to local gardens. Foliage is excellent in arrangements. Creamy flowers (right), though not spectacular, are attractive and fragrant.

Cunonia, recommended as an interesting filler for a fairly large garden, grows in sun or shade.



be troubled by the light frosts of our coastal region. It withstood 20 degrees at Del Dios last year without damage, but was killed at 16 degrees.

People like this plant, though they don't rave about it. Its ultimate size is a question that time and experience will have to answer, though judicious pruning will probably keep it in bounds. Being both attractive and unusual, it seems an ideal filler for the fairly large garden in either sun or shade.

If you should happen to have a bit of the poet or dreamer in you, cunonia's romantic colonial background should appeal to you and add to its charm. On the other hand, if you do not happen to have a bit of the poet or dreamer in you, perhaps having it in your garden will cast a faint romantic shadow over you, and add to *your* charm. Why not try it?

Donald Betts

BOOK TOURS

Conducted by
Alice W. Heyneman

Manual of the Trees of North America. By Charles Sprague Sargent. Dover Publications, New York, 1961 (Reprint of editions of 1905 and 1922, published by Houghton Mifflin). 910 pages. 2 Volumes, \$2 each.

This is *the* definitive work on American trees, now republished in two sturdily bound and handsomely printed paper-covered volumes. Charles Sprague Sargent, until his death in 1927, was Professor of Arboriculture at Harvard and Director of the Arnold Arboretum. His book had—and has—everything a standard reference work on the subject could possibly include, and it is a good looking pair of volumes besides, with a great wealth of illustrations.

The work is comprehensive in the extreme. A synopsis of 66 tree families is followed by a 12 page Analytical Key to the genera, which is based, with simplicity and logic, on leaf characteristics. It is the kind of learned and completely comprehensive reference work which is still easily understood by the beginner.

In the body of the books, the trees mentioned in brief in the tables are discussed again, this time described and identified at some length and illustrated with fine, clear cuts. These, being line drawings, are able to show distinctly not only leaves but flowers and fruit, and the text includes commentary not only on these features but on such matters as growth habits, bark, local variations, and in fact everything helpful to identification. The contention of the editors, that the work "assures you of identifying any native tree," would surely appear to be sound. Geographical distribution is given with precision, and both volumes contain a glossary and an enormously comprehensive index.

The work, in short, is quite properly described as monumental, despite its handy size. No species native to either the United States or Canada is omitted, and it is hardly surprising that its production involved 44 years of research by Mr. Sargent.

American Wildlife and Plants. By Alexander C. Martin, Herbert S. Zim and Arnold L. Nelson. Dover Publications, New York, 1961 (Reprint of a 1951 edition by McGraw-Hill). 500 pages. \$2.

Here is another useful guide, brought out by the same publisher. The subtitle, "A Guide to Wildlife Food Habits," is important to note, since the book deals not at all with identification of species as such, but with the interrelation of living creatures and plants. The authors cover the feeding habits of uncounted varieties of animals and birds (more than a thousand, says the publisher), and to this end they provide numerous cuts of the animals, birds and plants involved.

The project is the end result of 75 years of study by the U.S. Fish and Wildlife Service. It covers wildlife feeding habits with the thoroughness and precision characteristic of an official agency, and must surely be the definitive book in the field.

Nearly half the pages deal with the feeding habits of birds: waterbirds, game birds, birds of prey, song birds. Mammals and the sources of their foods come next. All the animals,

large and small, are included, from bears, possums, and raccoons to a division delightfully titled "Hoofed Browsers." The eating habits of fish, amphibians and reptiles take up the smallest and last part of this section.

The final division includes an exhaustive discussion of the plants themselves: all the sources of food, from woody plants to aquatic, and from weeds to garden species. Each listing of a plant is followed by a recital of all the wild creatures which dine on it, and whether they prefer fruit, seeds or foliage, or combinations or variations thereof; or as sometimes is the case,

merely the nectar, twigs, bark or stems.

Maps are many, since the habitat of plants and creatures is all-important. The book, as a summary of long and painstaking research, is an invaluable handbook for the wildlife specialist.

Most gardens have several ideal spots for rooting cuttings. Sink cuttings in the soil at the edge of a wooden container—already planted—and forget them. The plant in the container provides shade, the wooden sides warm the soil, and the moisture level ordinarily maintained turns out to be ideal for rooting.

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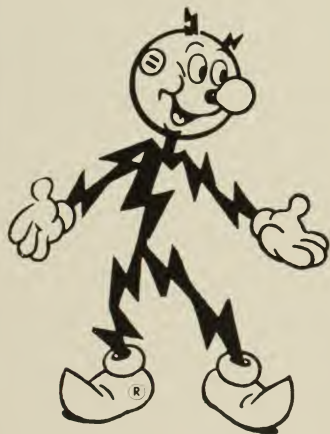
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A Calendar of

• CAMELLIAS

DISBUDDING rates high priority on the October calendar of camellia care. Well done, it is a chore that materially influences the size and quality of blooms and contributes to the vigor of plants in the growing season that follows the blooming period.

Not all camellias require disbudding. Sasanquas are rarely disbudded and reticulatas only occasionally. The popular *Camellia japonica*, however, is another story. Most varieties of this species set flower buds in clusters, and far too many of them. Natural bud drop will take care of part of the excess, yet disbudding must be practiced for best results.

Timing the operation is important. When disbudded too early, some plants will set a new crop of buds and thus reduce food reserves. Too late disbudding also depletes the food supply through the development of the excess buds. Most growers regard October 1 as the target date and then try to disbud within ten days, either way, of this date.

This timing allows for the fact that most camellia buds are set during the period of the "long day" in late summer. Very few buds are set after the autumnal equinox in late September.

Several factors govern the extent of disbudding.

Young plants blooming for the first or second season should be disbudded heavily to insure vigorous growth next spring. This means leaving one bud per 12-inch limb in the case of medium and large-sized flowers; two buds for varieties with smaller flowers.

Where exhibition flowers are desired, even mature plants should be heavily disbudded. It may be desirable to limit buds to one per 12 inches for small-sized flowers; one bud per 24 inches for medium and large-sized varieties.

For garden show, light disbudding is adequate. Reduce bud clusters to one or two buds each.

Caution must be exercised not to remove growth buds in the process of reducing the number of flower buds. Growth buds are slim, tapered, and tend to be longer than the flower buds. They are likely to be cigar-shaped and in the center of the cluster, surrounded by fat flower buds.

Excess flower buds are removed with a twist, not pulled off. Steady the twig for this operation by grasping it just under the bud cluster. Avoid gripping the growth bud while twisting off a flower bud lest the former be injured in the process.

Varied sizes of flower buds will be noted. The small ones are not necessarily runts, but usually buds initiated

after the larger ones; they will bloom days or weeks later. In disbudding, therefore, it is desirable to leave some small, medium, and large buds for the purpose of spreading the period of bloom.

When aiming for exhibition blooms, choose buds with a minimum of leaves positioned to interfere with the expanding flower, and favor the retention of buds pointing down rather than up. At show time many enthusiasts go over their plants and tie back, or clamp with a clothes pin, any foliage likely to distort in any way the expanding flowers. If these developing flowers are pointing downward they are less likely to be blemished by rain, dew, or dust. Then, too, petal color is less likely to be bleached than in the case of upturned flowers.

Clive N. Pillsbury
SD Camellia Society

Care

• BEGONIAS

BEGONIAS have enjoyed a very successful, mild summer. The weather in San Diego County has been both good and bad for them, at various times and places.

Late-in-the-season fogs encouraged heavy leaf growth, enabling the young rex begonias to grow to luxuriant sizes. The older plants of the rex clan were slow in starting, but the younger rhizomes held and produced beautiful leaves in time for the Fair in late June.

Tuberous begonias also were slow to produce blossoms without forcing, but they held their buds better this season, because of the cool morning weather.

In short, beautiful leaves on the plants grown for foliage beauty, and an abundance of flowers on begonias grown for gorgeous blossoms, have been the rewards of our mild summer.

The bug-a-boo of this ideal weather condition is a nasty word—mildew.

This blight was noticeable on many of the tuberous begonia leaves in top prize winning displays at the Fair. It can descend overnight, especially on improperly treated or untreated plants.

The gardener having a dozen or two plants in containers may control mildew effectively by using Doo-Spray, a product developed a few years ago. Rather than spraying it on, the writer recommends complete immersion of the plant, container, soil and all. Begonias growing in the ground must be sprayed, of course, the underside of

the leaves as well as the surface, and the soil around them. I have found that such dunking does not injure flowers, and the treatment is effective for at least three weeks.

When plants are watered by overhead sprinkling, the control material is washed off the surface of the leaves, so another dunking is recommended three to four weeks later.

It is important to watch closely for a recurrence of the mildew. The tall Angel Wing (*B. 'Lucerna'*) begonias seem to attract the blight first; then the small orange-flowered, hanging basket tuberous *Begonia sutherlandii* is affected; then the large-flowering tuberous types; followed by the rex begonias. All are susceptible.

This blight is especially prevalent in August, September and October, when many gardeners are apt to be lax in their garden housekeeping. Keep old, fallen begonia leaves removed and watch for the first signs of this mildew and *fight it*. The writer uses the powdered and liquid Doo-Spray with the same success, keeping the treated plants out of the filtered sun for three days after such treatment.

When the leaves fade on tuberous begonias, allow the plants to go dormant slowly by withholding water gradually. Do not pick off the growth until it is completely dead.

Where they are protected from harsh frosts, continue feeding other types of begonias a weak fertilizer through the winter. Young growth and frosts are not compatible.

Dorothy S. Behrends

● ORCHIDS

IF you made the switch to a low nitrogen fertilizer in September, cymbidium orchid care in October and November continues without change. A low nitrogen fertilizer will be required until January to promote flower spikes. A high nitrogen fertilizer is used from April to September to make rapid vegetative growth.

You should be noticing spikes now. They will appear at the base of the leafed, green bulb. It is important to keep the bug population at a minimum. Snails and large chewing bugs can completely destroy a new spike. Red spiders and aphids can get inside

Next Page Please



This markhamia in bloom stopped traffic along Torrey Pines Road (at Calle de la Plata) in La Jolla. It was planted two years ago from a 5-gallon can, bloomed the first year. Note the striking conformation of the buds and flowers (above).



Alice M. Clark

ROLAND HOYT* RECOMMENDS:

IF you agree that San Diego needs more flowering trees, here is one you can plant and promote with a clear conscience, remembering always that a mild climate and reasonable protection will be required. *Markhamia lutea*, an African native, combines unusual beauty of foliage and flower with relative hardiness and drought resistance.

This tree-shrub reaches a height of 30 feet when restricted to one stem. The blackish bark of the branchlets is roughened and scaly, but smooths out in maturity.

The crumpled, oblong-ellipse, sharply pointed leaflets have a bronzy tint which persists in the venation of the mature foliage. There is a four-parted, collar-like stipule at the base of the petiole. If they fail, the leaves show traces of purplish-black.

The tree blooms in late spring or early summer, when 2-inch, bignonia-like, trumpet-shaped flowers appear in terminal clusters. They are soft yellow with reddish-brown stripes inside.

Markhamia is reportedly hardy in humidity to 24 degrees, but will drop its leaves under very dry conditions or cold, and will experience damage to wood in 6-8 degrees of frost. It may be considered in much the same hardiness range as the African Tulip Tree

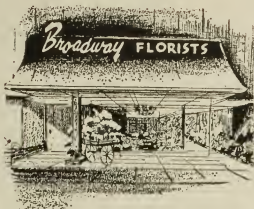
(*Spathodea campanulata*), its near relative, which has been grown precariously here in coastal regions and in the warmer foothill country. Markhamia seems to be a shade more adaptable to local climates.

Hugh Evans grew these trees in considerable numbers to supply the demand of Lockwood de Forest, landscape architect of Santa Barbara, who thought highly of its character and adaptability to conditions in Southern California. There must be many specimens of blooming size there.

One frost-damaged markhamia stood for years at the Evans nursery headquarters in Santa Monica. This tree might be used to illustrate the principle and desirability of fostering individual trees that seem to adapt. When the gardener finds such a tree, he should call it to the attention of a progressive nurseryman in order that wood or seed may be used to perpetuate the apparently harder strain, and serve to pull the range of the species farther north or into a more severe environment.

Markhamia came late to the San Diego area, where De Haan's Nursery of Leucadia has offered it from time to time during the last few years. The first one known by the writer to bloom is in the La Jolla garden of Mrs. John G. Clark, although a flower head from an unknown tree was brought in for identification several years ago.

*Member, ASLA, author of *Ornamental Plants for Subtropical Regions*.



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the protective sheath and harm the undeveloped buds.

While visiting a fellow orchid enthusiast, I noticed a group of laelias from Mexico growing among his cymbidiums. Laelias, closely related to cattleyas, have lovely rose-lavender flowers.

The following species from Mexico are among the easiest to grow and would be a fine addition to any beginner's lath house:

Laelia albida. Three to six white flowers on a long stem. The scented flowers are 2 inches across. The plants bloom from late autumn through early winter.

Laelia anceps. One to three rose-purple flowers on a long stem. The flowers are larger, about 4 inches across, and bloom the same time as *albida*. A white, alba form of *anceps* also is readily available.

Laelia autumnalis. Three to six rose flowers. The blooms measure 4 inches and have a strong fragrance. As the name implies the plants bloom in autumn.

Laelia gouldiana. Three to nine flowers, rose-purple. Flowers are about 4 inches across and bloom in the winter.

Laelia grandiflora. One or two rose-colored flowers. Fewer flowers, but the 6 inch size makes up for that. The plants bloom in the summer.

Betty Newkirk
SD County Orchid Society

plants dry out, but water only when they need it. Believe it or not, you will still have plenty of roses at Christmas-time to astound your Eastern friends and relatives. This regimen will harden your roses, so that you can prune them in January or February.

Too, this is the time to prepare new rose beds. Dig them deep—30 inches if possible. Always remember that roses do not like wet feet, so drainage must be the best possible. Should you encounter hard-pan, apply a soil penetrant which your nurseryman can recommend. Once the hard-pan is broken up, remove some of the sub-soil and add liberal quantities of humus to lighten as well as enrich the soil. Sources of humus? These are numerous; the most beneficial are the organics, such as bean straw, manure, dried grass clippings or compost. Good additions are bone meal, humisite plus soil sulphur. The purpose of the soil sulphur is to offset our extremely alkaline water. Wet and turn this material with your soil frequently until planting time.

Nettie B. Trott
SD Rose Society

● FUCHSIAS

ONE of the charms of fuchsias is their long season. Blooming, resting, blooming again, almost up to Christmas in San Diego.

On a tour of display gardens in September, it was interesting to see so many fuchsias in heavy bloom for the second or third time this season. Some of them, following the earlier blooming and rest period, had been fed an extra phosphate-bearing fertilizer for a wealth of blooms at a specific time. Some discreet pruning also had preceded the special feeding. But in this mild coastal climate, with proper protection from hot sun and wind, a regular and adequate supply of moisture in the earth and air around them, and feeding every two to four weeks with a good organic fertilizer, fuchsias will usually give lots of lovely bloom throughout our long summers. Special fertilizers and boosters, though they have their place, often require cautious trial and observation to be successful, especially for the amateur.

Fuchsias are especially adapted to container gardening. If the inner container is metal, the plants will not dry out to the danger point nearly so

● ROSES

WITH no summer this year in many sections of the county, perhaps we can look toward an Indian summer. Keep after your roses with fungicides regularly. Mildew has been a serious and discouraging problem due to the high humidity and warm nights. The battle may seem like a losing one, but regular spraying will keep the mildew down. As soon as the nights turn cool, mildew will die a natural death and your reward will be a profusion of beautiful blooms for your holiday tables.

Mid-October is the last time you will feed your roses in 1962. The reason for discontinuing feeding in October? Our steady, temperate climate encourages everything to grow year-round. Therefore, one must create a sort-of-dormancy for roses.

Come mid-November you should start to withhold water. Don't let your

quickly as will baskets or even pottery or wooden containers. It is much safer to put some sort of tin box or can inside wood or even moss baskets to conserve the all-important moisture that so often is gone before we realize it, even in cool weather.

After many weeks of the regular deep watering so necessary here to prevent accumulation of salts, additional soil may be needed around plants in containers. Consider a change of location as the season advances to provide better light or shade conditions for growth, bloom, or artistic effect in your garden.

In October and November, when our worst dry heat and Santa Ana winds sometimes come, extra attention to watering is most important. For fuchsias and other plants of rain-forest origin, some fogging with a fine mist on hot, dry days to moisten the air around them, as well as hard, sharp spraying to dislodge insects, is needed in addition to ordinary watering.

With good average care and feeding, fuchsias are remarkably free from plant diseases. However, they may be affected by some of the common insect pests, which often become most troublesome late in the season when plants may be tired or lacking in vigor from poor care. All nurseries have sprays and compounds for easy control of these pests. For worms and caterpillars the spray should contain DDT, but for thrip, white fly, aphids, and red spider mites, a spray containing malathion is recommended.

During the current widespread recognition and popularity of fuchsias, many people have been surprised and delighted at their distinctive possibilities in corsages and flower arrangements and for table decor with ferns. Floated in a big brandy snifter, blooms of some of the huge new varieties make a lovely table centerpiece.

Among the few flowers that bloom best in shady places, the fuchsia, with its many striking colors, unusual forms, and aristocratic daintiness, always stands out beautifully. When placed properly among other shade-lovers, it imparts a restful serenity that makes you want to linger. If nearby there are the comfortable seats that every good garden should have, here may be your favorite retreat from the tensions so common now, and an avenue toward the much-needed peace and hopefulness that so many of this world's people seem to be seeking with such small success.

Morrison W. Doty
SD Fuchsia Society



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• DAHLIAS

MANY gardeners who like to raise a few dahlia plants for flowers to brighten the garden or the yard worry needlessly about the problem of keeping the tubers from one season to the next. Better than to worry, the average gardener should let the roots stay right where they grew. If they survive the winter, fine. If not, they can be replaced at less trouble and expense than the trouble required to save just a few roots.

With as little rain as the San Diego area gets, the chance is good that there will not be enough moisture to cause the roots to rot while over-wintering in the ground. The chance is even better if the dahlia bed drains well, and no water stands in it.

Roots that don't keep in well-drained soil probably wouldn't keep anyway, even if dug and stored by the best specialist method. Healthy roots will keep; puny ones won't.

Left in the ground, the roots may be allowed to grow again without lifting next spring. The result will be more flowers, but smaller. Or, about the first of March, the roots can be dug, divided, and replanted to grow as big and perky as this year.

It is different if the gardener has a number of plants, or several of the more expensive varieties. He will want to take all the care necessary to save as many roots as possible. Actually it isn't difficult, and with one season's experience, the task becomes easy.

Like most other garden tasks, there are several ways of digging and storing dahlia roots. The gardener who has a satisfactory method should continue to use it, and not experiment.

First, the roots should be healthy; otherwise they aren't worth saving. If the plant never grew properly, or if the flowers were not satisfactory, dig the clump of roots and dispose of them. Put them in the trash to get them out of circulation.

Keep the plant growing until early November, if possible. The later the roots are dug the more mature they will be. When ready to dig, cut the stalk about a foot above ground.

Use a fork. Circle the plant with the tines about 12 to 18 inches from the stalk. Lift easily with the fork under the clump. Be careful not to break the necks of the tubers.

If the soil is not too loose allow it to remain on the clump. Turn the clump upside down and let it "cure" until the outer soil is dry—perhaps a couple of hours. If the sun is hot, move the clump to a shady spot, such as under a tree.

The clumps may be stored with the soil still on them. Place them (still upside down for drainage) in cardboard boxes, with vermiculite, peat moss, shredded paper—or even wadded paper—used as packing material. Tie the boxes for easy handling and store in a cool, dry spot out of drafts. A dark portion of the garage, a spot under the house, or a garden shed is a good storage place. Keep this way, the clumps can be brought out in late February, when the dirt can be washed off and the clumps divided.

The gardener who has many clumps may wish to wash off the soil and divide the roots immediately for storing. A portion of the crown, or main stalk should be allowed to remain on each division or root. The eye from which next year's plant will grow can be seen at the juncture of the root with the crown for a time after the clump is dug.

As the roots are separated into divisions, each cut portion should be dusted with sulphur, or a mixture of sulphur and captan or fermet. They should be allowed to cure out of the direct sun for a couple of hours, or until they have begun to harden off.

Each division should be marked for identification. Use an indelible pencil to write directly on the roots, or use tags.

Separated and cured, the roots are ready for cardboard boxes. They may be packed in layers, again using vermiculite, peat moss, etc.

If all this sounds too complicated, leave the roots in the ground.

Better still, go to a meeting of the dahlia society and listen to other home gardeners discuss how they save their dahlia roots from year to year and get fun out of it.

Larry Sisk
SD County Dahlia Society

The following publications, available free from University of California Agricultural Extension Service (San Diego office: 4005 Rosecrans, CY 8-4181), should be of considerable local interest:

"Landscape to Prevent Fire" (Pub. AXI-64).

"Clear Away Brush—Cut Your Fire Hazard" (Pub. AXI-69).

"Fire! It *Can* Be Controlled" (Leaflet 142).

Park Superintendent Lloyd T. Lowrey reports on

Soil Experiment

in Kate O. Sessions Park

WHEN development of Kate O. Sessions Park begins in the near future,* the San Diego Park and Recreation Department will be attempting a new approach to soil preparation and conditioning for park development projects.

In the past, soil preparation, under contract, has consisted of the following three major steps:

1. Native soil on the site is lightly scarified and rough graded; large rocks, roots and other debris are removed.

2. Topsoil is imported and spread to a depth of approximately 6 inches, and is mixed into loosened native soil.

3. Steer manure is incorporated into the soil mixture at the rate of three cubic yards per thousand square feet.

Following the above operations the soil and manure are rototilled to a uniform texture. Surfaces then are graded to finished grades and lawns, shrubs and trees are planted.

These procedures, though they provide a satisfactory planting medium for lawns and ground covers, mean that additional excavation is needed for planting of deep-rooted shrubs and trees, since the native soil has not been penetrated sufficiently to encourage good root growth.

In Kate O. Sessions Park, all soil surface will be scarified in at least two directions to a depth of not less than 18-20 inches. This operation, also under contract, will involve the use of very large bulldozer-type equipment fitted with heavy-duty scarifying blades. The existing soil will then be disked or rototilled to obtain a finer texture, and rocks, roots and other debris will be removed. After rough grading, as in previous methods, steer manure will be incorporated into the soil at the rate of three cubic yards per thousand square feet.

Although comparative cost analyses have not yet been made, we believe that the new method will save money, since it eliminates step two, the costly and time-consuming operation of importing topsoil. What is more, in most areas of San Diego, where soil structure and quality are extremely poor, it should afford improved surface drainage, increased root space, and more vigorous plant growth.

*Work began in September.—Ed.

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Planning

Colors?

Think Blue

BLUE flowers seem to be the most admired of all flowers in the garden, especially if they are a clear, true blue. Unfortunately, this is not too commonly found. Many flowers described in catalogs as sky blue prove to be lavender. The saying "as deceptive as a seed catalog" may not be fair to the catalog, however. If beauty is in the eye of the beholder, the same may apply to color.

We are told that the three primary colors, red, yellow, and blue, are not to be found in the same variety of flower. The rose—red and yellow, but no blue. Man, always experimenting, has produced a so-called blue rose; in reality it is a muddy lavender. The poppy—no blue. One described as being blue is really *Meconopsis baileyi*, not a true poppy. This, incidentally, is a lovely blue flower, described by plant explorers as found growing in Tibet. It is also grown in Alaskan gardens. But it does not thrive in California, perhaps needing a period of cold.

Blue is considered a soothing color, but a solid bed of blue is somehow disappointing (perhaps it is too soothing). In a bed of pansies, as blue as pansies come, with blooms completely covering the plants, the effect of all blue is uninteresting. A bit of foliage showing through will improve the effect.

Since blue is recessive, you can use a planting of blue at the far end of

your garden to give a sense of distance. Add brighter colors in the front line.

Now, for some of the plants which offer the uncommon, true blue:

Borage, a rather coarse-leaved annual, has beautiful, deep blue, star-shaped flowers. It grows easily from seed, and will re-seed if given a chance.

Some delphiniums, always pleasing, come in a good blue. The seed is quite slow in germinating, but if gathered as soon as ready and planted at once, it will come in surprisingly short time. But it must be fresh, and planted at once.

Among the annuals, the bachelor button Jubilee Gem is a fine clear blue, useful for planting in groups. As the season advances and plants become dry, remove them for best effect. Some of the lobelias come in clear blue, but be sure to choose the really blue variety. Nigella, or Love-in-a-mist, is a very nice annual with pretty blue flowers, dainty green foliage, and interesting seed pods useful in dry arrangements.

Myosotis, our much loved Forget-me-not, is always charming. There are many legends connected with it. One especially pretty tale has it that one day a patch of blue sky fell down and broke into a thousand pieces. The angels sent dew drops to hold the pieces in the grass, the sun sent golden rays for centers of the flowers, and we have the Forget-me-not. Some very practical person may wonder of what use are such fanciful stories. But in this day and age, with so much of the sordid and depressing spread on the air and in the papers, why not cherish such tales and take good thoughts to the garden?

Yellow flowers sprinkled among the blue add a touch of interest. If using lobelia for edging, plant yellow *Alyssum saxatile* next to it, and some such flowers as the new marigolds or new double Gloriosa daisy at the rear. And a few spots of white always make a good showing. Anyway, it is fun to experiment with color in your garden.

As a closing thought, let me quote these lines from an unknown author:

*I think the soul's own hidden hue
Must be some lovely shade of blue.*

Florence A. Pierce

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NATURE'S NOOK

... Sidelights
on the world of plants

Chrysanthemums

By Donald Betts

AN air of mystery surrounds a plant we see almost every day: the chrysanthemum.

Think for a moment of its historical background. Those in a position to know have said that it is the flower of the mysterious East, just as the rose is the flower of the dynamic West. Its original home has been traced back to the vast but little known regions of central China, so that when we think of this beautiful flower, we might also think of those inscrutable, far-off regions.

In our mind's eye we might see almond-eyed maidens, Buddhist monks, fragile Ming vases, paper dragons, translucent figurines of jade, silken figures on a Chinese screen. In our mind's ear we might hear exotic tinkling music, the murmur of voices above a prayer wheel, the ring of distant gongs. We might smell the incense rising from moonlit temples, and the cold, clean air off the dark steps. This flower captures our imagination, hinting as it does at wonderful secrets just beneath the surface of that far-off world.

Let us now consider the scientific background of the chrysanthemum. It used to be that every year, as golden October declined into somber November, the florist brought forth his chrysanthemums, for at that time of year the shortness of the daylight hours stimulated them into bloom. The ladies made a tradition of wearing them to football games.

But a generation ago it was discov-

ered that by deft manipulation of black cloth over the plants, creating thereby an artificially short day in the greenhouse, the flowers could be brought into bloom any month in the year. Conversely, by lighting the greenhouses with electricity to create artificially long days, the season of blooms could be postponed at will and as desired.

Above we found historical mystery, human mystery. Here is scientific mystery, natural mystery. What is it about the length or shortness of the play of light upon this plant that causes its hormones to initiate flower buds or not to initiate them? Temperature as well as light plays a mysterious part. Growth of the plants is very slow at 50 degrees or lower, but rapid above 60 degrees. Why? Some types of chrysanthemums produce reflexed flat petals if they open at 60 degrees. Why? Other types produce petals at the center of the flower at 60 degrees, but not at 50 degrees. Why? Certain pink and bronze varieties are of a lighter color when kept at high temperatures in the early stages of development, whereas if the temperature is lower the color is deeper. Again, why? The list of puzzling natural facts surrounding the chrysanthemum is long, and in many cases have thus far gone uncomprehended. This catches the imagination, hinting at wonderful secrets lying beneath the surface of nature, but as yet beyond our grasp.

Historically mysterious, scientifically mysterious. Yet we tend to take this wonderful plant for granted, just because we are blessed with it almost every day of the year.

But let us stop and think for a moment. Perhaps among the dusky shadows and unique fragrance of its many petals this beautiful flower hides a special secret for us, a special meaning and a special message. To my mind at least there *is* a meaning and a message: that in the simplest everyday things lie great mystery and the keys to nature's deepest secrets. If only we will keep our minds open, childlike. This world of ours *is* a thing of wonder. We must be full of wonder ourselves to grasp it.

Leo Dolz

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Potpourri

... people, places, products in the news

• Ethel Bailey Higgins

As Associate Curator of the San Diego Natural History Museum, Mrs. Ethel Bailey Higgins celebrated her ninety-sixth birthday at the office. She elected to retire on that day, August 10, 1962.

Mrs. Higgins, a descendant of colonial Governor Winslow, was born at Vassalboro, Maine in 1866. Her father was a Quaker, and it is perhaps from him that she gained her steadfast spirit.

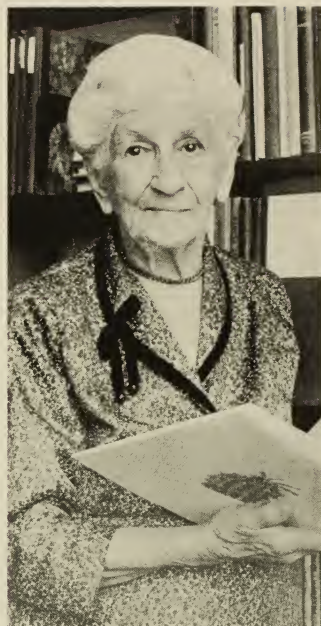
Although her active museum work on a daily basis has been discontinued, she is still a very busy person. At present she is completing a history of botanical exploration and of the plants of Baja California. Her many field trips to Baja have left her with great interest in Mexico and love for its people.

Her botanical publications, both numerous and noteworthy, include *Our Native Cacti* and *An Annotated Distribution List of Ferns and Flowering Plants of San Diego County*. Many Museum publications and magazine articles have flowed from her pen.

During twenty-six years with the Museum, Mrs. Higgins' professional contributions have been of great value. To cite only one phase of her work, the Herbarium has grown from 6000 to 46,000 dried plant specimens. It is now one of the more important collections in the West, and serves as a lending library for researchers all over the world.

She has never stopped learning. To brush up on her German, in order to translate some rare botanical books, she attended night school in her eighty-sixth year. When the techniques of silk screen printing seemed adapted to the type of illustrations she chose for her museum publications, she went to evening school to learn the technique. She is also a photographer of note, and her work has been widely exhibited nationally. Shortly before she was ninety, Mrs. Higgins bought a loom and learned the ancient and fascinating art of weaving. Her beautiful and unique designs are treasured by her family.

Nor has she given up traveling.



Mrs. Higgins

Tireless, dedicated, fearless, she has taken field trips and pleasure trips to Mexico in quite recent years. In 1961 Mrs. Higgins made a memorable journey to Kents Hill, Maine, for the 75th anniversary of her graduation from Kents Hill School.

Her fabulous variety of interests has made her forever young. Her talent for handling life with a light touch has endowed her with an ever-fresh point of view. A need to know and an inquiring mind have shaped a career that is as inspirational as it is remarkable. Ethel Bailey Higgins' affinity with the natural world has served to renew, refresh, and re-create her in a perennial fashion.

Conrad Fauntleroy Goldman

• Fiesta de las Flores

The city of La Mesa plans to celebrate Fiesta de las Flores next spring for the first time since 1957. Mrs. T. A. Mitchell has been appointed show chairman.



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In Balboa Park—a eucalyptus grove forms a naturalistic setting for the walk leading westward from the Fine Arts Gallery. A bust of Shakespeare in the niche announces the presence of the Old Globe, San Diego's Community Theatre, beyond. Many of these trees will come down to make way for the new West Wing of the Gallery.